

GLOSSARY

AABNCP	advanced airborne control platform
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ABS	acrylonitrile-butadiene-styrene (plastic)
AC	asphalt cement
ACE	armored combat earthmover
adj	adjusted
ADR	air base damage repair
AFCS	Army Facilities Component System
AFM	Air Force manual
AFP	Air Force pamphlet
AFR	Air Force regulation
agg	aggregate
AHD	average haul distance
AML	airfield marking and lighting
ammo	ammunition
APC	armored personnel carrier
approx	approximately
Apr	April
AR	Army regulation
ASCE	American Society of Civil Engineers
ASTM	American Society of Testing and Materials
Atterberg Limits	Soil plasticity test used to measure soil cohesiveness: that is, cohesive or cohesionless,
ATTN	attention
Aug	August

av	absolute volume
average daily traffic (ADT)	The anticipated average number of vehicles per day that will use a completed facility.
banked cubic yardage (BCY)	Soil measured in its natural state.
average running speed	The speed expected to be maintained by most vehicles. It is equal to the total traveled distance divided by total time consumed.
base course or base	Base course consists of well-graded, granular materials that have a liquid limit less than 25 percent and a plastic limit less than 5 percent. The base course is the most important element in a road structure. It functions as the primary load-bearing component of the road, ultimately providing the pavement (or surface) strength. Therefore, it is made of higher quality material than subbase material.
bearing capacity	The ability of a soil to support a vehicle without undue sinkage of the vehicle.
benching	Terracing on a slope.
berm	A raised lip, usually of earth, placed at the top edge of a channel to prevent flow into the channel at places not protected against erosion.
bitumen or bituminous	The most common type of asphalt surface placed in the theater of operations.
Bn	battalion
borrow pit	An excavated area where material has been dug for use as fill at another location.
BTU	British thermal unit
BVM	Bays Village of Maryland
C	Celsius
C	cut
CAD	computer-aided design
CAMMS	Condensed Army Mobility Modeling System
California Bearing Ratio (CBR)	A measure of the shearing resistance of a soil under carefully controlled conditions of density and moisture.
CDR	commander
CE 55	Laboratory compactive effort (CE) accomplished by the impact of 55 hammer blows per layer.

CES	civil engineering squadron
CEV	combat engineer vehicle
cf	cubic feet
cfs	cubic feet per second
CH	clays, high compressibility (LL>50)
CI	cone index
CL	clays, low compressibility (LL<50)
cm	centimeter
cm/sec	centimeters per second
CMD	command
CMP	corrugated metal pipe
co	company
coarse-grained soil	A free-draining soil of which more than 50 percent by weight of the grains will be retained on a No. 200 sieve. For traffic ability purposes, these are dry beach and desert soils usually containing less than 7 percent of material passing the No. 200 sieve. Gravels are not considered to pose a trafficability problem.
compacted cubic yards (CCY)	A measurement of compacted soil.
compaction	Process of mechanically densifying a soil, normally by the application of a moving (or dynamic) load.
compactive effort (CE)	Method used to compact the soil.
cone index (CI)	An index of the shearing resistance of soil. The CI is obtained with a cone penetrometer. The number represents resistance to penetration into the soil of the 30-degree cone with a 1/2-square-inch base area (actual load in pounds on cone base area in square inches), using a dial calibrated to produce an index of 300 when 150 lb of pressure are exerted on the handle. The CI reading is normally taken at the 0-inch (base of the cone) and at every 3-inch interval down to 18 inches or until the dial reaches the maximum of 300. A number of tests will be taken and each specified interval reading will be averaged. That average becomes the CI for the inch level.
CONUS	continental United States
CPT	captain

critical layer	The soil layer that determines the rating cone index (for fine-grained soil) or cone index (for coarse-grained soil) of the area considered. Its depth varies with the soil profile and the weight and type of vehicle. Generally, the critical layer for fine-grained soils is 6 to 12 inches below the surface when subjected to passes of a vehicle. For coarse-grained soils, the critical layer is usually from the surface to a 6-inch depth for all vehicular passes.
crown	The difference in elevation between the centerline and the surface edge. The crown expedites surface-water runoff on the road. The amount of crown depends on the surface used. Surfaces such as concrete or bituminous materials require little crown because of their impermeability, but permeable surfaces such as earth or gravel require a large crown.
crown	The outside top of the culvert.
CSS	cationic slow setting
cu cm	cubic centimeter
cu ft	cubic foot
CUCV	commercial utility cargo vehicle
culvert	An enclosed waterway used to pass water through a structure consisting of an embankment or fill.
cut or cutting	That portion of through construction produced by the removal of the natural formation of earth or rock, whether sloped or level. The terms <i>sidehill cut</i> and <i>through-hill</i> cut describe the resulting cross sections commonly encountered.
cut slope	The slope from the top of a cut to the ditch line (bottom of ditch). Sometimes it is called the back slope.
cy	cubic yard
DA	Department of the Army
DBH	diameter at breast height
DD	Department of Defense
Dec	December
deg	degree
dept	department
design hourly volume (DHV)	The number of vehicles that a road may typically be expected to accommodate in an hour. The DHV is 15 percent of the ADT.
design speed	The speed for which a facility is designed. Pertinent geometric features, such as horizontal curves and grades, may be based on design speed.

design storm	The storm of greatest intensity for a given period. For example, a “2-year design storm” is a storm expected to be equalled once in 2 years.
detention	The storage of water in depressions in the earths surface.
dia	diameter
dip	A paved ford used for crossing dry, wide, shallow arroyos or washes in semi-arid regions subject to flash floods.
ditch slope	The slope of the ditch extending from the outside edge of the shoulder to the bottom of the ditch. This slope should be relatively flat to avoid damage to vehicles driven into the ditch and to permit easy recovery.
diversion ditch	A ditch used to transport water away from roadways or airfields.
DMZ	demilitarized zone
drop	A structure that absorbs the impact energy of water as it falls vertically to a lower level waterway.
DT	ditch time
E	east
elev	elevation
EM	engineer manual
EM	enlisted member
Engr	engineer
EOD	explosive ordnance disposal
erosion	The transportation of weathered materials by wind or water.
EW	east-west
F	fill
F	Fahrenheit
Feb	February
fill or filling	Material used to fill a receptacle, cavity, passage, or low place, Using material to fill a cavity or low place.
fill slope	The incline extending from the outside edge of the shoulder to the toe (bottom) of a fill.
fine-grained soil	A silt or clay soil of which more than 50 percent by weight of the grains will pass a No. 200 sieve (smaller than 0.074 millimeter in diameter).

FM	field manual
ford	A shallow place in a waterway where the bottom permits the passage of personnel and vehicles.
fpm	feet per minute
fps	feet per second
frost action	Processes which affect the ability of soil to support a structure when accumulated water in the form of ice lenses in the soil is subjected to natural freezing conditions.
frost-susceptible soil	Soil in which significant ice segregation will occur when the necessary moisture and freezing conditions are present.
ft	feet
FT	Fort
ft/ft	feet per foot
ft/in	feet per inch
ft²/yd²	square feet per square yard
G	gravel
gabion	Large, steel wire-mesh baskets filled with stones, usually rectangular in shape and variable in size. They are designed to solve the problem of erosion.
gal	gallon
gal/lb	gallons per pound
gal/yd²	gallons per square yard
GC	clayey gravel
geometric design (geometry or geometric features)	Refers to all visible features of the road such as lane width, shoulder width, and alignment.
GLE	grade-line elevation
GM	silty gravel
gm	gram
GP	poorly graded gravel
grade	To level off to a smooth horizontal or sloping surface.
ground icing	An icing whose source of water is from groundwater flow above permafrost.

groundwater table The upper limit of the saturated zone of free water.

gunite A mixture of cement, sand, and water sprayed from a high pressure nozzle onto a surface to protect it.

GW well-graded gravel

HMMWV high mobility, multipurpose wheeled vehicle

HP high point

HW high water

hydraulic gradient The slope in feet per foot of a drainage structure.

hydrologic cycle The continuous process in which water is transported from the oceans to the atmosphere to the land and back to the sea.

icing An irregular sheet or field of ice.

in inch

infiltration The absorption of rainwater by the ground on which it falls.

in/hr inches per hour

in situ Soil in its natural (undisturbed] state.

interception The holding of rainfall in the leaf canopy of trees and plants.

Jan January

Jul July

Jun June

kg kilogram

kip kilopound (1,000 pounds)

km kilometer

kph kilometers per hour

laminar flow The type of flow that occurs when viscosity forces predominate and the particles of the fluid move in smooth, parallel paths.

lat latitude

lb pound

LIP length in place

liq	liquid
LL	liquid limit
LOC	lines of communication
LP	low point
M	silt
m	meter
Mar	March
mass diagram	Earthwork volume plotted on graph paper, showing cut and fill operations.
max	maximum
maximum towing force (T1)	The maximum continuous towing force in pounds a vehicle can exert. It is expressed as a ratio or percentage of vehicle weight.
MD	Maryland
MH	silt, high compressibility (LL>50)
mi	mile
min	minimum
min	minute
ML	silt, low compressibility (LL<50)
mm	millimeter
MO	maximum offset
MO	Missouri
mobility index (MI)	A number that results from a consideration of certain vehicle characteristics.
MOPP	mission-oriented protective posture
mph	miles per hour
MS	medium setting
N	Slipperiness symbol meaning not slippery under any conditions.
N	north
N/A	not applicable

NATO	North Atlantic Treaty Organization
NBC	nuclear, biological, chemical
NCO	noncommissioned officer
NE	northeast
NFS	nonfrost susceptible
No.	number
Nov	November
NP	number of pipes
NRMM	NATO Reference Mobility Model
NRS	naval radio station
NS	north-south
NSN	national stock number
Ø	offset
Ott	October
OL	order length
P	Slipperiness symbol meaning slippery when wet.
PC	point of curvature
perm	permanent
permafrost	Constantly frozen ground.
PFS	possibly frost susceptible
PI	plasticity index
PI	point of intersection
POL	petroleum, oils, and lubricants
pending	The accumulation of water at the upstream end of a culvert.
pop	population
R	probability
Prime BEEF	prime base engineer emergency forces

psi	pounds per square inch
PT	point of tangency
PVC	polyvinyl chloride
PVC	point of vertical curvature
PVI	point of vertical intersection
PVT	point of vertical tangency
QSTAG	Quadripartite Standardization Agreement
rating cone index (RCI)	The measured cone index multiplied by the remolding index ($RCI = CI \times RI$). The RCI expresses the soil-strength rating of a soil area subjected to sustained traffic.
RC	rapid curing
RED HORSE	rapid engineering deployable heavy operational repair squadrons, engineering
remoldable sand	A poorly drained, coarse-grained soil, usually containing 7 percent or more material passing a No. 200 sieve. Poor internal drainage increases the water content greatly influencing the trafficability characteristics and permitting the remolding test to be performed. When wet, these soils react to traffic in a manner similar to fine-grained soils and are more sensitive to remolding.
remolding	The changing <i>or</i> working of a soil by traffic or a remolding test. The beneficial, neutral, or detrimental effects of remolding may change soil strength.
remolding index (RI)	The ratio of remolded soil strength to original strength. Soil conditions that permit the remolding test to be performed with ease will usually result in a loss of strength.
Reqd	required
required towing force (T2)	The force in pounds required to tow an operable, powered vehicle on level terrain.
RI	remolding index
riprap	Rocks or rubble placed in the bottom and on the sides of a ditch to prevent soil erosions.
river icing	An icing formed along rivers or streams and adjacent areas having a source of water above or below the riverbed.
roadbed	The entire width of surface on which a vehicle may stand or move. The roadbed consists of both the traveled way and the shoulders.

road classification system	An organized list of four road types based on the number of vehicles each is designed to accommodate in a 24-hour period, Road characteristics are based on average daily traffic.
roadway	The entire width within the limits of earthwork construction and is measured between the outside edges of cut or fill slopes. Roadway width does not include interceptor ditches if they fall outside the slopes, The roadway width varies from section to section depending on the height of cut or fill, depth of ditches, and slope ratios.
RR	railroad
RRR	rapid runway repair
RS	rapid setting
RT	road tar
RTCB	road tar cutback
RTO	radiotelephone operator
S	Slipperiness symbol meaning slippery at all times,
S	sand
S2	Intelligence Officer (US Army)
S3	Operations and Training Officer (US Army)
sand grid	A honeycomb shaped geotextile measuring 20 feet by 8 feet by 8 inches deep when fully expanded. It is used to develop a beachhead for logistics-over-the-shore operations. It is also useful in expedient revetment construction.
SC	supply catalog
SC	slow curing
SCIP	scarify and compact in place
SEATO	Southeast Asia Treaty Organization
sec	second
Sept	September
SFC	sergeant first class
shoulder	That part of the top surface of an approach embankment, causeway, or cut immediately adjoining the roadway that accommodates stopped vehicles in emergencies and laterally supports base and surface courses.

shoulder slopes	These may be the same as the traveled way, but usually they are greater because shoulders are more previous than the surface course.
sight distance restriction factor	The percent of the total length of the road on which the sight distance is less than 1,500 feet.
slipperiness	The low traction capacity of a thin soil surface owing to its lubrication by water or mud without the occurrence of significant vehicle sinkage.
slope	The inclined surface of an excavated cut or an embankment.
slope ratio	The relative steepness of the slope expressed as a ratio of horizontal distance to vertical distance. Thus, a 2:1 slope ratio signifies that for every 2 feet horizontally there is a rise or fall of 1 foot. The value of the slope ratio used in construction depends on the properties of the soil and the vertical height of the slope. Ditch slopes may also be governed by the amount of water to be drained and the possibility of erosion.
SM	silty sands and poorly graded sand-silt mixture
SOP	standing operating procedure
SP	poorly graded sand
spring icing	An icing whose source of water is from subpermanent levels.
sq	square
sq ft	square feet
sq in	square inch
Sr	senior
SS	slow setting
SSG	staff sergeant
sta	station
STANAG	Standardization Agreement
stickiness	The ability of a soil to adhere to the vehicle undercarriage or running gear.
stilling basin	A structure used to protect the culvert outlet against erosion.
subbase or subgrade	Describes the in situ soil on which a road, airfield, or heliport is built. The subgrade includes soil to the depth that may affect the structural design of the project or the depth at which climate affects the soil.
subsurface water	Water beneath the surface of the land.

superelevation	The transverse downward slope from the outside to the inside of the traveled way on a curve. It is usually expressed in inches of drop per horizontal foot or foot-drop per horizontal foot.
surface course	The surface course provides a smooth, hard surface on which the traffic moves. It may be constructed from asphalt or tar products, concrete, gravel, or compacted earth with certain types of binders. The surface course should be all-weather and should provide for the rapid runoff of water. The use of treated surfaces is limited to roads that have a long design life. A divisional road with a life expectancy of 6 months or less will receive only an earth or gravel surface.
SUSV	small-unit support vehicle
SW	southwest
SW	well-graded sand
T1	maximum towing force
T2	required towing force
TBM	temporary bench mark
TC	training circular
temp	temperature
time of concentration (TOC)	The time it takes for an entire drainage basin to begin contributing runoff to a drainage structure.
TM	technical manual
TN	air transport
TO	theater of operations
TOE	table(s) of organization and equipment
TP	transition point
traction capacity	The ability of soil to resist the vehicle tread thrust required for steering and propulsion.
traffic lane	The traffic lane consists of the road surface over which a single lane of traffic will pass,
transpiration	The process by which water that has traveled from the ground through the plant's system is returned to the air through the leaf system.
traveled way	The road surface upon which all vehicles move or travel. For a single-lane road, the traveled way is the same as one traffic lane. For a multilane road, the traveled way is the sum of the traffic lanes, If a surface course is provided, it normally extends only across the traveled way.

turbulent flow The type of flow that occurs when viscosity forces are relatively weak and the individual water particles move in random patterns within the aggregate forward-flow pattern.

US United States

USAES US Army Engineer School

Uses Unified Soil Classification System

UXO unexploded ordnance

VC vitrified clay

vehicle cone index (VCI) The index assigned to a given vehicle that indicates the minimum soil strength in terms of rating cone index (or cone index for coarse-grained soil) required for one pass (VCI_1) or other passes (VCI) of the vehicle. Usually one and fifty passes are used as extremes.

VMC visual meteorological conditions

Vol volume

W1 weight of a towing vehicle

W2 weight of a towed vehicle

w/ with

w/o without

WF waste factor

wp wetted perimeter

W.R.C. wire rope cable

wt weight

WT weight type

yd yard

yr year

< less than

≤ less than or equal to

> greater than

≥ greater than or equal to

ΔG change of grade